

Application No. 09/872,412
Request for Reconsideration Dated: November 16, 2005
Reply to Final Office Action of September 29, 2005

REMARKS/ARGUMENTS

In a Final Office Action dated September 29, 2005, claims 20-22, 31, 35, 39 and 42 were rejected under § 102 over Wyatt; and the remaining claims were rejected under § 103 over Wyatt and various other references. Applicants submit that the claims are allowable.

Interview

Applicants thank the Examiners for the telephone interview of November 8, 2005. It is believed that the discussion of the background and explanation of the preferred embodiment and the discussions around the various claim groups and rejections were very helpful.

§ 102 Rejections

Claims 20-22, 31, 35, 39 and 42 were rejected under § 102 over Wyatt. Applicants respectfully traverse the rejection.

Claim 31

Claim 31 requires "transmitting the queued frames from the plurality of first ports to the plurality of second ports so that the frames are received at the second ports in order as received at the first switch." The Office Action referenced p. 2, ¶ 25 of Wyatt stating that the data flow is transmitted to the destination in the order that they are received. The full quote of Wyatt is "data packets 140a-c for the data flow from source 102a to destination 112c are transmitted to the destination 112 in the order that they are received by the switch 100."

The Office Action correctly notes that Wyatt discloses in order transmission over links having the same speed. But the claim includes the positive requirement that the frames are transmitted so that they are received in order. The device of Wyatt cannot meet this requirement because it does not, and cannot, know the delivery order of the frames. The delivery order requires taking into account the relative transit times over the various links framing the plurality of links. The Office Action actually acknowledges this point when it uses Fig. 1A in Wyatt to allege that the Wyatt distances are the same.

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However, Wyatt Fig. 1A does not teach or suggest the same distance point. Fig. 1A is a high level block diagram. It is not a physical link drawing, so it cannot represent the link distances. An analogy would be to compare a schematic diagram of a circuit with the traces on a PCB for that circuit. Other than having the proper elements connected, there is no correspondence between the lines on a schematic and the trace locations on a PCB. Thus a reference to Fig. 1A of Wyatt to suggest identical link distances is inappropriate. This leaves Wyatt only teaching in order transmission, not in order delivery, as required in the claim.

Applicants thus submit that Wyatt does not teach or suggest a required claim element of claim 31 and those dependent therefrom.

Claims 35, 39 and 42

Each of these claims similarly requires “transmitting logic for transmitting the queued frames from said two ports over said two links so that the frames are received at said two ports of said second network device in order.” As discussed with respect to claim 31, Wyatt only discloses transmission in order, not reception in order, thus not teaching or suggesting a required claim element.

Applicants submit that claims 35-45 are allowable over Wyatt.

Claim 20

Claim 20 requires “the transmit port routing frames received at the first switch across the group to the second switch.” The Office Action referenced a section in the Summary of Wyatt as showing this requirement. The two relevant sentences are “trunk port selector logic in the switch selects a trunk port entry dependent on the flow hash. The trunk port entry selects the physical link” The Office Action further referenced the egress port engine and ports being in element 110 in Figure 1B.

Applicants submit that reference to the Detailed Description of Wyatt places the physical link selection logic elsewhere than the transmit port as required by the claim. Specifically, Wyatt places the logic in the ingress or receive portion, not even the transmit or egress portion, much less a transmit port as required. See Fig. 1B, forwarding logic 128, which is introduced at p. 2, ¶ 26. The forwarding logic 128 is in the ingress

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ports 104, not even the egress ports 110. Thus the details of Wyatt clarify the summary used by the Office Action and clearly indicate that Wyatt does not teach or suggest the claim requirements.

Applicants thus submit that Wyatt does not show a required claim element of claim 20 and those dependent therefrom.

103 Rejections

The remaining claims were rejected over Wyatt and various references including Muller, O'Keefe, Bertin and Kadambi. Applicants respectfully traverse the rejections.

Claim 1

Applicants respectfully submit that the trunking master ports required in claim 1 are not shown, taught or suggested by the combination of Muller, Wyatt and O'Keefe.

Claim 1 requires that the trunking master control the frames routed over the trunked group. The Office Action references col. 1, lines 37-50 of O'Keefe as suggesting this claim element. Applicants respectfully disagree.

The relevant portions of the citation read:

"Packets which are destined for a remote device that is linked via a trunk are directed to the bridge port of that trunk and simple low level circuitry decides, . . . , which physical port of the trunk should be used for forwarding the packet to the remote device."

This is explained in more detail in Fig. 2 of O'Keefe and col. 4, lines 23-46. Referring to Fig. 2 of O'Keefe, the switch logic 8 selects the destination port, the BP port. The hashing logic 9 then selects a particular port 6 or 7 for the packet. Applicants specifically note that the switching logic and hashing logic 9 are not a portion of the ports 6 or 7 and thus does not meet the requirements of claim 1 where the trunking master ports control the frame routing over the trunked group. This is similar to arguments relating to Wyatt made above with respect to claim 20, where the forwarding logic was not part of the output or egress ports.

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Therefore, while O'Keefe may use similar language, a closer inspection reveals that O'Keefe actually teaches away from the claim requirements. Thus Applicants respectfully submit that claim 1 and those dependent therefrom are allowable over the combination of Muller, Wyatt and O'Keefe.

Claim 11

Applicants first note that for claim 11 an input port has been defined to be a master transmit port. This contradicts the elements of Muller defined by the Office Action as trunking master ports in claim 1 (output ports as best understood) and claim 10 (clearly output ports). It is a fundamental point that the definition of an item cannot change between claims. Thus this forms a first reason the rejection of claim 11 is improper.

Secondly, claim 11 requires enabling a frame to be received at the second switch with "in-order" delivery. The remarks made for claim 31 apply equally here for claim 11. Thus Applicants submit that Muller and Wyatt do not show "in-order" delivery.

Claim 5

Claim 5 was rejected over Muller, Wyatt, O'Keefe and Bertin. Applicants respectfully traverse the rejection.

As a first point, while Bertin may maintain propagation delay values for each link, this does not teach or suggest determining one way skew values for links associated with the trunked group. A skew value is only relevant between two parallel links. A skew value cannot apply to a single link. Bertin's concern is overall transit time or variation, as appropriate because Bertin only utilizes single links, not parallel links as needed for skew values.

Further, there is no suggestion in either Muller, Wyatt, O'Keefe or Bertin to use a skew value to add a port to a trunk group. Muller does not indicate how ports are added to a trunk group, much less using a skew value in that determination. O'Keefe may have some mention of adding ports to a trunk group but it involves only frame address detection, not a skew value. Bertin does not add this teaching or suggestion because Bertin does not involve trunks and never suggests determining a link skew value.

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Claim 6

Claim 6 is allowable as being based on allowable claims 1 and 5. Further, the arguments of claim 5 relate here. Bertin may maintain link speeds but does not suggest comparing two speeds of links for a trunking determination. The skew arguments from claim 5 apply directly. Further, the arguments about Muller not teaching how a port is added to a group applies. Muller merely is related to routing for trunks, not assigning to trunks. Similarly O'Keefe does not use link speed as a factor in adding a port to a trunk group.

Claim 23

Applicants traverse the rejection of claim 23. In addition to the requirements of claim 20 discussed above, claim 23 requires a timer used in conjunction with a list associated with the transmit port to ensure "in-order" delivery of frames. Applicants request reference to paragraph 51 of the present application. In the preferred embodiment the timers bind or block transmit operations until the relevant link skew is accommodated. A mere timer to measure propagation delay does nothing like this. A propagation delay timer would do nothing to ensure "in-order" delivery. Thus the mere presence of a timer to measure propagation delay does not begin to teach or suggest various requirements of claim 23.

Claim 24

Applicants traverse this rejection. The Office Action defines the timer in claim 23 to be for maintaining propagation delay and then in claim 24 the Office Action references a time to live parameter. These two items in Bertin are completely unrelated, yet the Office Action attempts to use them in some combination. As claim 24 is dependent on claim 23 and further defines the timer of claim 23, this reference to a completely different item is improper and the rejection must be withdrawn.

Claims 32, 36, 40 and 43

Claims 32, 36, 40 and 43 require determining skew values for the links and using those skew values to control timing of the transmission. The Office Action cites Bertin for teaching propagation delay, which is equated to skew value. The Office Action also

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cites portions of Bertin as showing a quality of service requirement with various parameters.

As a first point, the arguments made above with respect to claims and skew values apply equally here. Bertin relates to single links not the parallel links required for skew values to be determined.

As to the quality of service portion of Bertin, Applicants submit this is not relevant to the claim requirement relating to timing of the transmission. Bertin relates to route selection, so the quality of service parameters listed apply to route selection, not timing of transmissions over a link, particularly when the timing is used to develop in order frame delivery as required in claim 31 and related claims.

Applicants submit that claims 32, 36, 40 and 43 are allowable.

CONCLUSION


Based on the above remarks Applicants respectfully submit that all of the present claims are allowable. Reconsideration is respectfully requested.

Respectfully submitted,



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<p>CERTIFICATE OF FACSIMILE TRANSMISSION 37 § C.F.R. 1.8</p> <p>I hereby certify that this correspondence is being transmitted by facsimile to Commissioner for Patents, at 571-273-8300, on November 16, 2005.</p> <p style="text-align: center;"> Keith Lutsch</p>
